

**Towards A Fusion Of Western Classical/Contemporary And Traditional
Scots Bagpipe Composition Techniques: "*Manntaireachd*"**

Lindsay Davidson

A thesis submitted in partial fulfilment of the requirements of Napier University
for the degree of Doctor of Philosophy

June 2006

**Towards A Fusion Of Western Classical/Contemporary And Traditional
Scots Bagpipe Composition Techniques: "*Manntaireachd*"**

Lindsay Davidson

A thesis submitted in partial fulfilment of the requirements of Napier University
for the degree of Doctor of Philosophy

June 2006

**Towards A Fusion Of Western Classical/Contemporary And Traditional
Scots Bagpipe Composition Techniques: "*Manntaireachd*"**

Lindsay Davidson

Index:

1. Abstract (p.3)
2. Musical Relativity (p.5)
3. Pibroch form and its extension (p.10)
4. Manntaireachd Technique (p.14)
5. Controlling scale through motivic structure in the ground (p.18)
6. The folio and its context (p.21)
 - Symphonies and Manntaireachd technique (p.21)
 - Chamber Symphony Number 1 (p.23)
 - Symphony Number 1 (p.39)
 - Cockroaches (p.42)
 - The New Deliverance (p.44)
 - Manntaireachd 1 (p.46)
 - Bezpanski Pies (p.49)
 - Lament for the Lime Tree (p.50)
 - Welcome to the Twelve Tones (p.53)
7. Summary (p.56)
8. Acknowledgements (p.61)
9. About the author (p.62)
10. Select Bibliography (p.66)
11. List of Appendices (p.89)

1. Abstract

The body of research that this document accompanies and which forms a folio of compositions has sought to develop a new type of music utilising elements from both the western art music and bagpiping¹ traditions.

The orchestral² medium is combined with the experiential philosophy of piping (discussed below under “musical relativity”, page 5) free composition is mixed with pre-compositional event determination (such as serialism and its consequences from the 20th century); orchestral forms³ are generated using traditional piobaireachd⁴ phrase structure and aesthetic. The resulting method of composition is called “*Manntaireachd* technique⁵”.

This research was primarily driven by a desire to apply traditional piping compositional methods to the classical tradition and thus create a new medium that could potentially facilitate greater exchange, both philosophically and practically between these two cultural groups. A secondary objective was to broaden the technical range of bagpipe usage and context.

The philosophical and formal aspects taken from the piping tradition are discussed below in sections 2, 3 and 4. Some classical inspiration was drawn

¹ Hereafter referred to as ‘piping’ in compliance with common usage.

² Meaning a variation of the tradition orchestral ensemble established since the early 18th century and expanded latter half of the nineteenth century, and other combinations of the instruments employed therein in chamber ensembles.

³ symphony, opera.

⁴ Hereafter ‘pibroch’, the anglicised spelling of the Gaelic term used to describe the highest form of pipe music

⁵ This is a term invented by the author to describe the technique.

from Luciano Berio (specifically his series of pieces entitled *Sequenza*), Luigi Nono (*Intolleranza 1960?*) although a very wide range of music was appraised when making stylistic and timbral decisions, more detail of which is placed in the bibliography.

Other sources drawn upon for this research were: Anton Webern (form and function), Wojciech Widlak⁶ (for development of *Manntaireachd* technique, discussed below (page 13) and S.I. Witkiewicz (see below, page 41) for his theories on art. The Piobaireachd Society's series, Major General Thomason's and Archibald Campbell of Kilberry's 'Ceol Mor'⁷ have been extensively employed in researching pibroch style and form (discussed below).

The methodology was tested through application in the accompanying folio of compositions; *Chamber Symphony Number 1* (chamber ensemble), *Symphony Number 1* (symphony orchestra), *Cockroaches* (chorus, solo male voices and chamber ensemble), *The New Deliverance* (vocalists and large orchestra), *Manntaireachd 1* (string quartet), *Bezpanski Pies* (harp and soprano), *Lament for the Lime Tree* (Scottish smallpipes, borderpipes and string quartet), *Welcome to the Twelve Tones* (solo borderpipes).

⁶ Professor of composition at the Cracow Music Academy, Poland, successor to Penderecki in this position.

⁷ 'Ceol Mor' is Gaelic for 'Big Music' and is the term used by pipers to describe pibroch as opposed to 'Ceol Beag' ('Little Music') or music which is extended from collective social function such as dance or marching, which is not considered by pipers to be 'art music'. Thomason published the first collection, called 'Ceol Mor' in 1900, followed by the piobaireachd Society's first series (abandoned and replaced by a new series). Archibald Campbell of Kilberry published his 'Ceol Mor' collection in 1948. Between them, these publications include almost all of the known and collected pibroch.

2. 'Musical Relativity'

Albert Einstein graphically illustrated his theory of relativity by using an image of a person jumping backwards or forwards in a train, and measuring the distance covered according to different points of reference. Anton Webern in his *Path to the New Music* stated the function of musical form to be to enable and strengthen comprehensibility of a central musical concept⁸. Synthesis of these assumptions tells us that an independent musical/artistic concept exists beyond the scope of the immediate moment of aural experience. Different historical periods and social/artistic contexts vary the way in which a listener experiences a piece of music and the role played by linearity in this.

Linearity in this sense is taken to mean the consequential significance of aural events as caused by harmonic and melodic environment. In tonal music, for example, a dominant will tend toward a tonic and thus create a sense of movement through based on awareness on the part of the listener of historical practice. In music from the second Viennese school onwards this awareness of historical practice ceases to be primary in understanding the context and thus linear force in any given piece of music. Historical practice and its influence on linearity however, should not be dismissed as irrelevant but rather balanced in each individual case study.

Musical dialogue in the traditional sense depends to a certain extent on an appreciation of linearity essentially derived from tonal practice.

⁸ Which it should be noted he believed to be inherent in nature

'Moment form', as described and practiced by Stockhausen can be understood as a collage of individually linear sections juxtaposed to create an image or imprint of the entire musical concept.

Nono's *Mobile Sound* (i.e. *a Carlo Scarpa*) presents another non-linear concept rather more independent of traditional tonal practice. The minimalism of Steve Reich and the idea of gradual change in a texture caused by changing phases of repeated small fragments also serve to create a new experiential environment in which linearity is not primary. Computer music using generated or modified sound units as material also mainly function outside of traditional linearity.

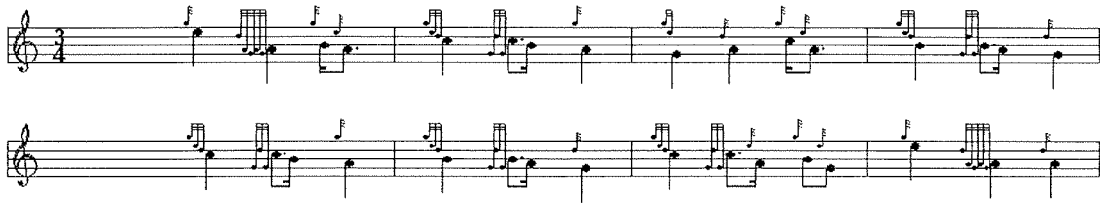
Just as tonal harmony grew from the gradual introduction of polyphony in early music, the function of linearity has become and continues to become an increasingly important musical element for many composers critical to the creative process and the listening experience.

In pibroch, it can be observed that each phrase contains an implied amount of tension through the progression of intervals in the melody. Appraisal of tension is achieved by combining both the intervals assembled vertically (i.e. sounded simultaneously) and the accumulation of relative tension between each interval. The duration of the phrase in time and in terms of number of notes becomes essentially irrelevant with the proviso that one does of course hear in real time. Thus the creation and release of tension is experienced in

small local units (preceding, current and proceeding note), between phrases and on a more global level simultaneously.

This is demonstrated below⁹:

The Unjust Incarceration



Each bar here can be seen as a separate phrase. A drone on 'A' causes a higher level of instability and tension in those bars which are melodically identical (bar2 and bar 4 for example) but on different pitches. Four separate tension levels can be identified – bars 1 and 8 are least tense with emphasis on minimal dissonance within the phrase, bar 2 and its repeats is slightly more tense (historically when this tune was written the C would have formed a neutral third with the drone), the third bar with the G in the group is comparable in tension to the seventh bar although melodically more disjointed and therefore minimally greater in actual tension (representing its function as a continuation phrase in at the start of a piece as opposed to the seventh bar's function as introducing the final) and the remaining repeated phrase, by occurring in a different harmonic relationship to the drone is a tenser presentation of the second bar but seems less tense than the third and

⁹ This and the other pibroch examples below are from the traditional repertoire.

seventh bars. Each phrase or moment is self-contained and serves a function as a structural unit and has an additional internal format separate to this.

A central, independent musical concept is illuminated throughout an entire pibroch from varying perspectives by reducing the underlying melodic structure to themal notes plus embellishments. This is the process of variation in pibroch. If we take the origin of pibroch to be partially illuminated by the Robert Ap Huw¹⁰ harp manuscript we have an even more striking example of this philosophy in practice. In a musical form for instrumental ensemble based upon stretto and repetition, motivic fragments varied in timbre by orchestration, with varying aural appearance and continuation¹¹ achieved by mixing with other elements may function in the above aesthetic.

Musical relativity within the manntaireachd environment can be characterized in two ways; the thematic group (ground) is a condensed form of the entire musical argument, whilst every note in the piece can be viewed as both a self contained moment and a cell within bigger cells of increasing size up until the entire movement. Thus there are as many layers and levels of understanding of a piece written with this philosophy as there are notes. By condensing the musical essence in the ground, inevitably not every aspect is visible (perceptible).

¹⁰ 'Piping legend states that pibroch was derived from harp music, and that pipers assumed the work of harpists at highland courts. Listening to realisations of the manuscript gives credence to this and is truly striking in its resemblance to aspects of pibroch. Allan MacDonald's research into historical style further supports this understanding.

¹¹ Lawrence Kramer's theory of musical argument being a result of creation and satisfaction (or not) of expectation and tension by repetition or suggestion of repeating figures and motives.

In musical relativity the abstract concept is presented by the performer from a continually changing perspective, but the concept itself can never be viewed in its entirety, just as a person can never see the entire surface of a globe at the same time. This creates a style which is not based on musical discourse but on juxtaposition of diverse elements and aspects of a central static abstract concept.

Critical to this is that the performer has freedom to vary dramatically the experience of the listener by varying the shading and tensions between voices, tempo variations and so on.

Synthesis of Pibroch and the Western Art Tradition may be achieved by identifying an essential definition of a common musical philosophy and using this as a bridge. The concept of musical relativity, with foundations in both western art music and pibroch is central to the portfolio of compositions that this document accompanies and it is hoped that the music therein will be experienced from this perspective.

3. Pibroch form and its extension

As stated above, a pibroch is a theme¹² and variations in which the variations systematically reduce the theme to its essential harmonic structure and embellish this with increasingly complex groupings of gracenotes. Of primary concern to the development of *Manntaireachd* technique was the traditional phrase structure of the pibroch ground.

Kilberry offers the most concise definition¹³ of the three main traditional pibroch structures:

- 1 even lined tunes i.e. of three even lines of four bars with the first line repeated.

Example 1 - even lined tune

Lady Doyle's Salute



¹² In 'piping this is referred to as a ground, conforming to the period terminology. In recognition of this the term ground will be used hereafter.

¹³ "Kilberry book of Ceol Mor", credits Thomason with the original theory

- 2 tunes of three lines each consisting of 6,6 and 4 bars (or multiples thereof). This type can be further divided into a) 'primary pibrochs' consisting of two phrases (A and B) arranged as AAB, ABB, AB where on each repeat of a phrase there may be small variations and b) 'secondary pibrochs' which will have four phrases, ABC and D in which C and D are double the length of A and B and will then be arranged as ABCD, CBAD, CD.

Example 2a - 'primary'

Glengarry's Lament

The musical notation for 'Glengarry's Lament' consists of three staves of music. Each staff contains a sequence of notes and rests, with some notes marked with accents. The music is written in a single melodic line across three staves.

Example 2b - 'secondary'

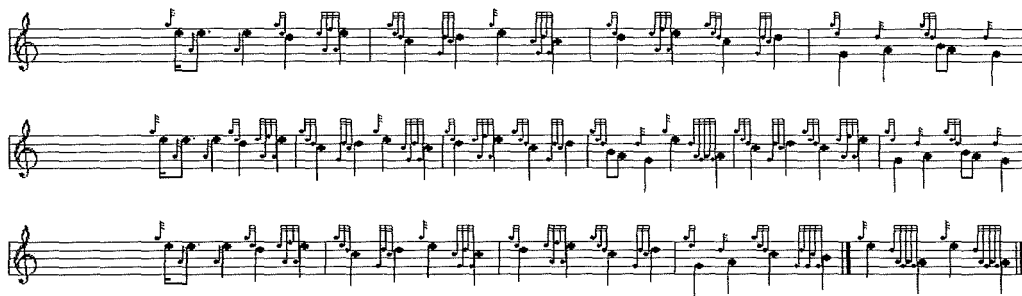
The Gathering of Clan Chattan

The musical notation for 'The Gathering of Clan Chattan' consists of three staves of music. The notation is divided into four distinct phrases labeled A, B, C, and D. Phrase A is the first 4 bars, B is the next 4 bars, C is the next 8 bars, and D is the final 8 bars. The labels are placed above the corresponding sections of the music.

- 3 A less common form, 4,6,4,1 (or 4,6,4,2) or other irregular variants of the forms described above. In some cases the final phrase will be added only to effect a firm cadence and close of the ground. This form is uncommon, and sometimes thought to occur due to inaccurate recording of a pibroch text¹⁴.

Example 3 – ‘irregular’

I Am Proud to Play A Pipe



With the exception of cadential phrases at the end of each line, repeats are rarely exact and may differ extensively from the original phrase.

It can be seen that an uneven ground of the secondary type described above can be used to create a longer first line of an even form and then developed as a conventional ground of the first type above. This approach was adopted

¹⁴ In the 19th century prizes were given by the Highland Society of Edinburgh and that of London for the ‘scientific’ notation of pibroch. This was to record pibroch in staff notation as opposed to the standard canntaireachd notation of the time – a system using vocables to describe musical events. Canntaireachd is still the standard used for teaching pibroch. Several versions of canntaireachd existed at the time although only one is commonly used today.

by the author for composing extended and complex pibroch in the early 1990s but has not been widely adopted¹⁵.

Kilberry gives eight conventional variation types and comments that it may be possible to classify ten commonly occurring types. He further goes on to state that twenty-seven other unique variations are to be found in the Kilberry book alone. In addition, there are several types of *taorluath*¹⁶ and *crunluath*¹⁷ variations.

Most variations are typically 'doubled': the first time they are played, the cadences are left as in the ground but in the 'doubling' these cadences are then treated as themal notes¹⁸.

Tradition provides rules governing the correct choice of variation (specifically *taorluath* and *crunluath* variations) for particular motivic mannerisms in the ground. This is well enough understood that in any given group of pipers, starting with only a ground, it is highly probable that they would all create identical or very similar variation sets.

¹⁵ It should be noted that composition of new pibroch was considered by the broader piping community until the end of the 1990s to be irreverent and insulting to tradition. Few composers dared write pibroch and fewer still dared publish, and then with mixed response. Donald Macleod and Archibald Kenneth both published pibroch but only at the end of their careers.

¹⁶ Traditionally the penultimate variation in pibroch.

¹⁷ Traditionally the final variation in pibroch.

¹⁸ Very rarely a variation can be tripled by adding a further variation process onto those which have already been applied. This will most commonly be in the *taorluath* and *crunluath* variations. However this is more commonly stated as being a separate variation and frequently doubled.

4. Manntaireachd Technique

Definition of terms to be used:

Ground the initial theme which is subjected to note duration extension in even number multiples.

Variations each recurrence of the ground in original durations

Event matrix the complete material gained from multiplying the note durations in the ground by 2, 4 and 8 and presenting the resulting lines simultaneously in separate voices.

Tenor the longest multiple of the ground, typically 8 times the duration of the ground

Realisation the final stage in composing when material is picked from the available event matrix and orchestrated.

A three-line ground is freely conceived by the composer which is to contain the essential musical concept to be realised throughout the piece. This may conform to an internal phrase structure derived or extended from traditional pibroch structure. To be effective, the entire intended evolution of tension of the piece should ideally be contained within the ground. The global argument should be both reflected in the formation of the ground and the realisation of the event matrix. Ideally the moments of maximum tension are reflected in the tenor which will lie in a tonal area at maximum dissonance from the underlying modality. For example if a ground suggests a modal tonality, a point of

maximum tension from there may be a tritone from the final and be surrounded by notes which lie exclusively outside of the underlying mode.

The rhythmical duration of the ground is then multiplied by two, four and eight, with each resultant voice being given a new stave and presented simultaneously with the original. To complete the event matrix, the ground in its various durations is repeated as required (eight, four and two times) to have each line sounding to the end of the tenor. Variations are the ground in its initial duration and thus there are 8 variations available for each piece. It therefore follows that there are eight major cadencing points in the event matrix with smaller cadences in between. The tenor will set the dominant tonal area between these main cadences. Additionally certain pitches will be duplicated between voices and therefore should be highlighted in the realisation as being essential aspects of the inherent musical concept. All of these points need to be controlled by effective construction of the ground.

For more complex musical forms it proved to be necessary to introduce a bass line to thicken a texture and provide additional material. This both gives further control over the resultant event matrix but also introduces considerable additional complexity. The harmonic and motivic content of the bass is set in contrast to the ground and serves on another level as a drone, giving additional clarity and definition to the level of tension in a phrase by setting a second point of reference.

Whilst the bass line is subservient to the ground it accompanies, it can have a considerable level of independence for 'comment' upon and imitation of the primary material. A bass line can be given its own structure and can further be designed to support and highlight the desired global characteristics of the piece.

In the multi-themed movements one common bass line is motivically derived from both grounds but serves each ground independently. This provides extra coherence and gives a greater organic sense to the entire movement. The use of an enhanced bass line¹⁹ in cyclical works assists in reconciling diverse elements from several movements into one complex summary movement (such as the finale in both the accompanying *symphony* and *chamber symphony*).

The final stage of composition with *Manntaireachd* form is 'realisation'. The event matrix establishes when events start and how long they may be active. However, there is no need to restrict events to specific voices and it is this intermingling of voices and events that produces variety with *Manntaireachd* technique. Some movements use all events and freely arrange them between all the instruments (such as *Manntaireachd 1*) whilst other realisations use only a small fraction of the available events (such as *New Deliverance* and the *Symphony*). Choosing what to bring to the fore and how to combine events is the key to successful application of *Manntaireachd* technique.

¹⁹ An enhanced bass line can appear to be as active as a ground, but will in fact always be subservient to its governing ground(s) and will have periods of rest either on longer notes or actual silence which would not be included in a ground. Rests are largely redundant in *manntaireachd* grounds but can be used in the bass line to mark thinning of textures. Rests where they are used serve to create rhythmical variety and to separate motives.

The potential scale and scope of each piece is varied in several ways:

- Length of ground
- Addition of contrasting grounds forming further subject groups
- Complexity and motivic integration of ground with bass.
- Interpolation of other events matrices or of free compositional sections.

The event matrix in a two themed piece with bass line may be graphically represented thus:

A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B
F	F	F	F	F	F	F	F
2A		2A		2A		2A	
2B		2B		2B		2B	
2F		2F		2F		2F	
4A				4A			
4B				4B			
4F				4F			
8A(Tenor A)							
8B(Tenor B)							
8F							

Where A is first subject group/ground, B is second subject group/ground and F is bass line common to both subject groups/grounds. This is in fact the scheme used for the Symphony Number 1 (see page 38).

5. Controlling scale through motivic structure in the ground

The relative complexity and level of variation in the ground controls the perceived 'scale' of a movement. In musical relativity, the actual duration of a movement, whilst having a real time effect, is not the primary element in setting the scope and scale of piece.

A small-scale movement may be diagrammatically represented thus:

Line 1			Line 2			Line 3	
AB	C	D	C'	B'A'	D	C	D
FREE BASS GIVES GLOBAL HARMONIC PLAN							

Where ABC+D are motivic cells and the lines represent phrase marks (bar lines in staff notated pipe pibroch) and "' represents variants on the indicated motivic cell.

A much larger scale movement may be derived from the similar material.

(ABCD) and an example of a ground may appear thus:

Line 1							
AB	C	D	C	B'A'	D'	C'	D'
Bass line containing fragments of ABC+D, closing at end of line							

Line 1 'repeat'							
a'b'	c'	d'	c'	b'a'	d'	c'	d'
Bass line containing fragments of ABC+D, abcd and retrogrades. Half close at end of line.							

Line 2							
Line 1 with new phrase structure created by dividing same material in different places i.e.							
A	BC	D	C'B'	A'	D'	A'	D'
Bass line containing fragments of ABC+D, abcd and retrogrades altered to create extra mid movement tension and an independent motive. Not closed at end of line.							

Line 3							
Line 1 with new phrase structure created by dividing same material in different places and further varied by transposing fragments and retrograde. i.e.							
A'	B'C'	D'	C'B'	A'	D'	A	D
Bass line as above with gradual transformation to simplicity and indication of harmonic closure for whole piece. Closed at end of line.							

Where a, b, c and d are further variants of ABC+D, derived through transposition and retrograde. In this model each cell may be varied and transformed in isolation from each other cell. The issue of closure will depend on the exact harmonic environment.

The second model may result in a considerably larger event matrix but the essential sensation of 'expansive' writing is derived from transformation of the basic material and re-presentation of the motivic cells in different pitches and retrogrades. The scheme may be further expanded by addition of a second ground which may or may not share a common bass line.

6. The folio and its context

Each piece in the accompanying folio has a specific set of research questions and all but two explore a different potential use of *Manntaireachd* technique: *Lament for the Lime Tree* explores a linear²⁰ realisation of pibroch and does not employ *Manntaireachd* technique, *Welcome to the Twelve Tones* is a chromatic pibroch for solo bagpipes formally within the pibroch tradition.

Symphonies and *Manntaireachd* technique

The diversity of works throughout history titled 'symphony' renders the title itself unhelpful in deciding what 'the symphony' should be, what resources should be deployed and whether or not the form can still be current.

Almost every major school²¹ of composition has attempted to redefine and adapt 'the symphony'. As argued by Ballantine²² not all works called symphony are symphonic and not all symphonic works are called symphonies. One may accept symphony as being amongst the highest forms of absolute music²³ in the western art tradition. If one accepts this assertion then union of the piping and orchestral tradition should happen at equal levels, therefore *Manntaireachd* (as a pibroch derived technique) should be adapted and tested in a symphonic context.

²⁰ Linear in the sense that each variation is approached like a traditional pibroch with one particular process being applied to each variation as opposed to *Manntaireachd* technique in which essentially the variations exist at the same time as the theme.

²¹ Perhaps minimalists can be excluded from this remark.

²² Christopher Ballantine, "Twentieth Century Symphony", Durham 1983

²³ Meaning music which does not seek to adhere or elucidate an illustrative 'programme' or other extra-musical agenda.

For the purpose of testing whether or not *Manntaireachd* technique can render a symphony the form has been defined as a cyclical work of several sections or movements in which two or more thematic groups engage in a musical discourse which could somehow be described as epic and which does not depend upon an external programme for form.

To address the question of symphony, *Manntaireachd* technique had to be expanded to provide alternative subject groups (grounds) and to enable exchange and mixture between grounds through a common bass (which needed then to contain elements from both grounds). Symphonic argument had to be redefined for appreciation within the aesthetic of musical relativity – the linear experience of organic²⁴ argument needed to be replaced with a sense of enlightenment through juxtaposition and synthesis of one motive with other, ‘competing’ motives. Specific challenges for each movement were then set which will be discussed below. Future symphonies may seek to address similar or different questions in different formats – for example a single event matrix may be used for several different challenges, thus making a single movement symphony in multiple sections.

²⁴ In a post Beethoven sense.

Chamber Symphony Number 1

The primary objective in writing this symphony was to establish a formal approach for multi-themed works in a manner suitable for the intimacy and limited scope of 'chamber music'.

The intended performance space is as important to the definition of chamber music as is the duration of movements and the instrumentation. For this piece it is hoped that the venue would be a modern concert hall with seating for approximately 300. The intended scale of venue controlled the decision both for the size of the ensemble and the available sonoristic effects. The string body needs to be large enough to give a sense of physical presence²⁵ for the whole audience in the *forte* sections whilst not too big to overwhelm the winds in delicate sections. Likewise the pianissimo wind passages should be clearly fully audible and clear in intended colour.

For example in bar 1 of the first movement, in a smaller venue, with single strings, the flute could take this pitch as a whistle tone but in the intended venue, this effect would not necessarily suffice.

²⁵ 'Presence' here meaning the sound and colour heard in the auditorium. One of the most obvious yet least appreciated aspects of bagpipe music, is the sheer physical power, or 'presence' of the instrument. Pipers will often respond to the effect in a large room of sustained notes apparently building in power as the noise level builds up through reflected sound. Failure to manage this effect properly can lead to premature fatigue on the part of the listener.

Experiencing a movement in view of the above comments about musical relativity means that the perceived scale of a movement is rather more defined by the nature of the initial material in the ground than by time alone.

The ground and bass for the first movement can be seen below and discussion of this will serve to demonstrate the application of *Manntaireachd* technique on a small scale. The above definition of symphony has been modified for 'chamber' form in so far as the contrasting thematic groups are different aspects of the same ground. This approach would be comparable to Webern's *Symphony op21*, which though not called such, could be understood as a chamber symphony. Arvo Pärt's *Symphony Number 2* (1966) likewise could be thought of as a chamber symphony and its mixture of medieval elements and serial methods provide a further model for this chamber symphony.

Chamber Symphony 1st Movement Ground With Bass

LINE 1

A B C D

LINE 1 REPEAT

3 3 3 3

LINE 2

B A+C+D MIXED FREE (A')

LINE 3

A' (C) C' B' C' D

The contrasting subject groups are A and B, both contained within a single ground. Pauses are used to separate these groups and make them clearly identifiable. C relates to both B and A – the dotted eighth and sixteenth figure as can be seen outlined in B and the triplet is taken from A, and therefore should be understood as a phrase which serves to facilitate discourse. D is a closing figure.

As demonstrated above, using a secondary (332) ground to generate the first line of an even lined form is likely to have the effect of expanding the argument. A bass is used which though freely composed, has two distinctive features – the triplet first heard with B (thus mixing A with B) and the rising scale and octave jump under D.

The bass does not close on a common final and therefore could be seen as contributing to an expansive tendency in this movement. This potential structural conflict is balanced by the containment of both subject groups within one single ground.

The repeat of line 1 is simply a retrograde in the ground and a free bass in which again the triplet figure is given alongside B to further establish the linkage through the bass of the two themes. The end of this section is marked by the bass closing the line on a final shared with the ground.

Line 2 is supported by a very simple bass, reduced to its harmonic function of setting relative tension of the ground. The implication is that argument in the

middle of the movement will take place mainly by restating and altering elements of the ground, and not by introduction of additional argument via the bass line. In any ternary form, the central section will be used as the main area giving length to a movement. Limiting the expectation through restricting the bass ensures that the movement will not expand to epic proportion, thus staying within the 'chamber music' brief. The rests and syncopations at the end of line 2 in the ground will result in the comparable section of the tenor coinciding with the same figure in all three strettos of the ground offering an opportunity to control global structure from the ground. The tritone between the ground and the bass here is a sign of maximum tension at the point of textural breakdown.

Line 3 implies A from line 1 rhythmically and initially melodically but with altered continuation. B has been reduced but is once more marked out and separated from surrounding material by rests. In such a manner the movement is not forced to close and collapse too early, but the possibility to bring it to a strong close when desired is retained. The cadential phrase, D, is unaltered, as this will be used to close the movement.

The bass line has two functions in line 3 – the B flat at the start is pulling towards a Phrygian cadence (which it will be noticed is used frequently in the accompanying folio of compositions) whilst the G third note from the end supports this. The use of E in an apparent dominant function in the bass at the end throws up two issues – the quasi-diatonic character of the entire piece

(which is in conflict with the more obvious modal sound), and a sense of incomplete closure.

Note that in bar 127 of the realisation the Phrygian cadence is clearly firstly marked out and then negated by the positioning of the fifth E-B. In the final bar, the Phrygian semitone figure Bb-A and the diatonic G#-A are both stated to further highlight non-closure and continued argument throughout the whole symphony. This is prepared, as demonstrated, in these last few notes of the ground.

The slow introduction is line 1 and its repeat realised in a very simple manner with each of the components described above brought to the foreground of the texture, including the bass triplet associated with but separate from B. In this way an argument is prepared but not yet entered into.

At the bar 9 change in tempo, the sixteenth note subdivisions represent the introduction of free elements into the *Manntaireachd* technique although it is obvious that here this is no more than an articulation. Freely subdividing a longer event occurs again in the second movement with a three eighth note figure.

Until the end of the first variation (the first full presentation of the ground) the approach adopted in the slow introduction is followed through – highlighting the basic material to be discussed throughout the movement.

As with '*Manntaireachd* 1' each variation is set a different overall task. A single ground movement (with bass or without) will naturally need to apply a 'question' or process to each variation somewhat comparable to the systematic variation process in pibroch.

The second variation, from bar 17 to 32 can be described as sustained background sounds supporting a texture of fragmented elements of the ground freely distributed throughout the orchestra. Line 1 and its repeat are given at a medium dynamic and presence; line 2 is at a fuller level with fortissimo lower strings and a retreat in line 3 marks out a structural point and change of realisation strategy.

The third variation (b33-48) reduces its presence to a very small sound. Firstly the winds give line 1 and the repeat followed by the whole ensemble being used to start to introduce a discursive process. Motives tend towards closure and more silence is allowed into the texture. This is designed to introduce very much a sense of a middle section to the movement.

The fourth variation (b49-64) is joined in its function with the following variation (b65-80) and the move from one to the other is not marked out in any particular way. Here the movement reaches its most intimate moment. The silences are prepared by the rests in line 2 of the ground as shown above, although the placing of this realisation is extended. Grand gestures are juxtaposed with tiny whispers all through the ensemble.

Greater presence and more dramatic dynamics mark out the sixth variation as bringing a change in direction: slightly more complete presentations of the thematic material assists in this.

Almost all phrases imply a close in the seventh variation (b96-112), indicative of the global structure and the final variation in almost its entirety is one long cadence. As mentioned above, the quasi-diatonic/modal debate is kept open in the last few bars, although it will be observed that as in the trumpet, frequently this dichotomy is highlighted throughout the movement.

Whilst in musical relativity the linear appreciation of musical structure may seem to be of secondary importance, it is not negligible. Global structures are as important as each small moment as multiple listening and examination of a movement will give messages on several layers and will reveal a whole movement to be a 'moment' which can be appreciated in its entirety.

Musical relativity is about appreciation on many levels, including the relationship between the tenor and the tension thrown up between the actual realisation and that which is predicted by a consideration of the ground. Individual performances of any piece using *Manntaireachd* technique may rightfully give voices radically different significance from any other performance. This will primarily be achieved through tempo fluctuations and minimal alterations in balance.

Whilst some variations and sections could theoretically happen at any time, on the experiential level at which the entire movement is a single entity global structural markers are needed to make the piece intelligible, just as the ground itself suggests the shape of the entire movement.

The slow movement specifically seeks to demonstrate that *Manntaireachd* technique can be used to create a colour tableaux supporting an aria.

The material consists of a simple eight bar ground with no bass and in the first variation every event is used in the realisation:



Whilst at first this does not seem to resemble pibroch form in any way, the melodic language is closely related. Changing the second D in bar 4 to an E then we have a traditional pibroch cadence figure. It is clear that the second line is derived from the first with the third bar reversed and altered to render bar 5. Bar six is an answer to bar 2 and the seventh bar combines the inner bars of line 1. The ending and cadence are repeated from line 1.

One may, however, expect another two lines. By not being brought into creation, it is indicated that the overall length of the movement is somehow to be abbreviated in realisation.

The first two variations give the 'aria' complete twice. The second is more tense and dramatic, and this is achieved through altering a few notes by an octave thus changing an appoggiatura into a strained note which rather than cutting into a upper pitch is trying to escape a lower pitch.

The third variation introduces the three eighth note figure mentioned earlier. This is a freely added element although the pitches and placement are derived from the event matrix. The fragmentation of the melody gives pathos and the very vocal character of the oboe and bassoon is chosen to further emphasise this in contrast to the warm tone of the horn. Specifically the realisation is displaying two emotional extremes of one musical concept.

The fourth variation reduces this process still further and thins the texture almost to a minimum. As predicted, the movement does not carry on and present every possible variation, ceasing at the end of the fifth, which has the global function of marking the ending – the ground is given almost complete and the dramatic crescendo and diminuendo indicates a climax has been reached.

The final free element in this movement is the addition of an A as bar 33 serving to reinforce the cadence and give firm closure.

The third movement set the specific task of using *Manntaireachd* to create a 'tune with accompaniment'. Webern demonstrates²⁶ the place this concept has in musical development very effectively and why it is critical that any new method of composing concerned with comprehensibility²⁷ should address this issue. Within the symphonic tradition, this movement seeks to represent a *scherzo* and the format 'tune plus accompaniment' was felt to be most suitable for this purpose. It was also desired to mix a rhythmical ostinato into *Manntaireachd* technique as a free compositional element.

This throws up the question of the musical form being exclusively introspective and essentially disconnected from both the listener and his/her linear concept of time. It may be proposed that no art form, if it is to be experienced by people can exist exclusively within its own terms as listeners cannot escape their previous experiences and expectations completely. The introduction of free elements and acknowledgement of the 'outside world' in global structural strategies is an attempt to reconcile this conflict of ideal states (art self contained in conflict with pre-programmed consumers of said art) and facilitate understanding. In realising an event matrix attention has been paid to do so with a certain amount of western art aesthetic, especially as proposed by Lawrence Kramer.

²⁶ In "The Path to the New Music" lectures.

²⁷ *Manntaireachd* is concerned with comprehensibility as is musical relativity. Webern's explanation of why composition using twelve tones related only to each other belongs to the same tradition as medieval monody, the Netherlander's school, Bach and Beethoven can be applied equally to *manntaireachd*.

The ground is a 24 bar phrase in two contrasting sections – firstly a presentation of the tune and secondly a contrasting answer to this. The first section is indeed divisible into three lines but each is treated as a period in a longer statement. In the second section of the ground elements from the tune are partially ‘worked out’, or developed, to generate musical discourse later in the piece. The bass is freely generated and in contrast to the ostinato, has many quarter notes. Throughout, diatonic harmony is suggested but never allowed to establish itself. Likewise, rhythmically the tune suggests patterns and then by insertion of a rest or syncopation, disrupts this. The strive for regularity in the ground and bass material and the conflict this establishes with the ostinato provides an extra layer of argument to the movement.

The two-part nature of the theme comes as close as any other piece in the accompanying folio of compositions to a periodic structure.

The first two variations are concerned entirely with presenting the ground. The first variation gives the first half quietly and the second half vigorously whilst the second variation reverses this scheme, marking out this section as one unit.

The third variation introduces development. The horn presentation of the tune in stretto accompanied by the continued ostinato serves to dislocate and disorient the material from its earlier context. The strings then start to fragment the ground. The fourth variation alters the continuation of the theme, thus sustaining the tune plus accompaniment character of the piece but

keeping the continuation fresh. Constantly the listener is unable to decide what to expect to hear. Towards the end of this variation the ostinato figure is also suppressed, thus indicating that a critical structural moment has been reached and that a return to familiarity should happen soon.

This return is disguised by *stretto* at bar 97. Enough material is given for the listener to realise and re-orientate their expectations, and then the ostinato is brought back dramatically. What follows would in another formal context be described as an interpolation – a surprise episode giving little heard material (the sixteenth note figure at bar 113) which firmly keeps its place in the movement by the continual presence of the ostinato figure. Further breakdown and disintegration of the melody indicates the end of this section and the tune is brought back, complete and reminiscent of the beginning, formally marking this as a coda.

As with the second movement the entire matrix is not used in the realisation.

This movement shows that *Manntaireachd* technique can be mixed with free compositional elements which are not expected to function within the experiential philosophy of musical relativity and that this dichotomy can be used as a musical argument.

The finale seeks to thematically combine and summarise all of the foregoing movements; a tune with accompaniment, an apparent conflict in rhythm and several diverse thematic elements must be combined into one ground.

Chamber Symphony 4th Movement Ground With Bass

Measures 1-3 of the musical score. The piece is in 3/8 time. The key signature has one sharp (F#). The music features a steady eighth-note accompaniment in the bass and a more active melody in the treble.

Measures 4-6 of the musical score. The melody continues with eighth-note patterns, and the bass accompaniment remains consistent. Measure 4 is marked with a '4' at the beginning.

Measures 7-9 of the musical score. The key signature changes to two flats (Bb and Eb) starting in measure 7. The melody and bass accompaniment continue with similar rhythmic patterns.

Measures 10-12 of the musical score. The key signature remains two flats. The melody features some rests and a dynamic accent (>) in measure 12. Measure 10 is marked with a '10' at the beginning.

Measures 13-15 of the musical score. The key signature changes to one flat (Bb) starting in measure 13. The piece concludes with a final cadence. Measure 13 is marked with a '13' at the beginning.

Several features of the ground should be noted – the high level of activity in the bass line, the amount of imitation between the bass and ground, the ‘false entries’ of the falling fourth figure, the inversion of the same figure, quasi fugal activity, the development of figures by transposing fragments, the chromatic scale and the lack of closure on a final at the end of the ground.

Repetition of motives and themes in several voices, stretto, emphasis on contrapuntal methods of generating harmony are all fugal techniques and this movement partially seeks to ask if fugue can successfully be suggested through *Manntaireachd* technique. An element that *Manntaireachd* has common with fugue is that the theme (subject) must by definition somehow contain the essential seeds of the entire piece. It may be said that Bach’s mastery of fugue was expressed not only in technical realisations but equally in the creation of well crafted, fertile subjects and countersubjects.

Extensive experiments were carried out prior to writing this movement with two part inventions and it was discovered that it is highly unsatisfactory to treat a two-part (or more) invention as a ground for *Manntaireachd* technique. The resulting event matrix is unlikely to give the variety or the structural meaning required to write a successful movement. Whilst this may render good moments, it will not carry an entire movement. Likewise, such a ground and bass as here would not be regarded as able to make a successful two-part invention.

Rhythmic instability is established at the very beginning of the realisation and it is not at all clear from here what is going to happen. Indeed tempo is disguised for the first few bars.

The first variation is a mixture of introduction (as in the first movement) and presentation of thematic material as in the third movement. The second variation is the first complete statement of the ground. Development occurs in the third and fourth variations. The fifth is quasi fugal including many of the devices one would expect to see in a fugue – false entries, near inversions of subject and so on. The chromatic scale in the bass instruments gives a structural signal and moves us into a quiet and intimate sixth variation. This is reminiscent both of the slow movement and of the comparable section in the third movement.

The seventh variation is yet another grand gesture serving to introduce the coda which is the eighth and final variation.

The falling scale (which is already present) is used partly to indicate the nearing close whilst musical gestures become larger, simpler and less frequent. The appearance of easily recognizable elements of the ground at original duration and in strettii serves to effectively slow down the perceived rate of change in the movement thus preparing the listener for an ending.

Only in the last note does it become obvious why the ground and bass did not end on a final of the mode as now a unison 'A' firmly and finally ends the piece.

Symphony Number 1

The intended performance space for this symphony is a conventional, large concert hall such as might house any symphonic concert. The objective in writing this symphony was to establish a formal approach for large scale symphonic writing using *Manntaireachd* technique. As with the *chamber symphony*, each movement has its own particular set of issues to be addressed.

The first movement event matrix is derived from two contrasting grounds which share a common bass line. The thematic plan in the realisation may be represented thus:

Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7	Var. 8
A+B	A	B	A+B	A+B	A	B	A+B
F							
Slow intro Bar1-32	Exposition Bar 33-96		Development Bar 97-160		Recapitulation Bar161-224		Coda Bar 225-256

Where A and B are grounds (and all of their stretti), A+B is where they are freely mixed together, and F is a bass line (with stretti) common to both grounds.

The grounds were both secondary uneven lined forms according to the description above and were highly linked to both each other and the common bass line.

The challenge in this movement was to create an epic symphonic argument over a much larger canvas than the chamber symphony. As demonstrated above careful organisation of the ground has been used to provide the potential for this within the event matrix with all eight variations being called upon in the realisation.

The second movement, as in the chamber symphony is a single ground with no bass. The movement is approached in the same way as '*Manntaireachd 1*', with each variation seeking to give its own particular task to the event matrix. This partially linear format was chosen for the greater resources of a symphony orchestra and a large-scale work to symbolise a pibroch as the most ambitious form in pipe music. '*Manntaireachd 1*' as an exercise in variation in articulation should be seen as a challenge to each section of the orchestra. This is intended to be the most sonoristically varied and challenging movement of the symphony.

'Tune with accompaniment' appears in the third movement, as in the chamber symphony, but the expanded duration and scope of this piece mean that a very different approach needs to be taken. Two smaller 'tunes' are placed together in the manner of a minuet and trio, deliberately appealing to the earlier symphonic tradition. Neither section here is allowed to use all the

potential variations, and the 'trio' section is interpolated between two variations of the scherzo. The characters of the two sections are radically different with the trio aiming to be small scale and intimate. The use of the harp and the following low string bridge passage seek to highlight this.

The finale uses elements from all of the foregoing movements and combines them in two grounds and a bass, as in the first movement, all working strongly together to create a dense but varied event matrix from which a systematic realisation is brought to prominence.

The form is broadly suggestive of the first movement, but none of the sections are kept so puritanically focussed on their subject groups. In the first movement, where 'A' is marked in the diagram, only 'A' strettis and the bass are used, whereas in this movement some elements from 'B' are mixed in freely with 'A' sections. Additionally, there is a greater mixing of material between the two subject groups.

The ground is of an irregular type, with a special cadential bar added as in the irregular forms of pibroch described above. This bar is common to both subject groups and has a second function which serves to limit the scope of the movement.

Critical to all of the movements was an expanded role of the bass which needed to be highly imitative and deeply related to both grounds in order to give an expanded sense of discussion throughout the movements.

This symphony seeks to expand substantially upon the general principles established in the chamber symphony and demonstrate that *Manntaireachd* technique and musical relativity together can provide a practical formal approach for 'the symphony'. By using two separate grounds to provide thematic groups instead of varying aspects of a single ground and by integrating the bass with both of these, a coherent large scale form has been generated.

Cockroaches

Stanislaw Ignacy Witkiewicz (1885-1939), better known as 'Witkacy' to distinguish him from his father was a controversial Polish artist and writer famed for his experiments in creating art whilst under the influence of exotic narcotics. His many friendships included Karol Szymanowski and the famed anthropologist Bronislaw Malinowski. Witkacy was regarded as being the most advanced, challenging and experimental creative mind of his times in Poland and his works, which were neither promoted nor particularly suppressed during the post war political system are gaining in popularity in many ways thanks to his influence on the style of Tadeusz Kantor, the legendary theatrical producer from Cracow. A theatre in Zakopane, where Witkacy lived much of his adult life, is dedicated to his works.

Cockroaches was intended as a short piece to test whether or not a single event matrix could render material for an entire dramatic work, covering different scenes.

It was also felt that this would be an ideal piece in which to explore the possibilities of using *Manntaireachd* technique together with sonoristic instrumental techniques to reflect mood implied by the text. There is no complex drama or extended narrative and the artistic 'event' is the performance itself, a celebration of art for its own sake. The extended instrumental techniques discovered in the second half of the last century are here viewed not as experimental but established tools for use within a broad palette of potential colours.

It can be seen that in terms of mood and action, the four scenes of *Cockroaches* are moderately homogenous; as they do not require a change of scenery, they may also not require a change of event matrix. The four scenes could be described thus: introduction and questioning, the second the same but with increased urgency, the third of horror and disgust and the final scene is violent and vengeful.

The performance space is intended to be small and intimate with seating for perhaps one hundred. The string body could be reduced to single players with minimal alteration and loss of texture (bowing on the body of the instruments and some *divisi pizzicato* for example) and the intimacy of the intended venue it is hoped will allow the most delicate and marginal subtleties of tone to be perceived.

The New Deliverance

The New Deliverance, by Witkacy is essentially a commentary on inter-generational conflict in the Poland of his formative years. However, it seems equally applicable today as the political upheavals and social change that Poland has gone through since the change of systems in 1989 has resulted in a comparable sense of social decay which can be argued as being at least partly a cause of the rise of the extreme right in today's political landscape. It was this sense of currency that encouraged the author to choose this text.

Originally a one act play, the author has amended the original into two acts – the first act essentially static and psychologically descriptive, laying out the major issues, with the second act containing all of the dramatic action. The musical structure reflects this. The first act was minimally altered, with small phrases and individual words changed, or rather retranslated. Each of the three scenes was given a separate ground, which was conceived to carry a very large-scale presentation. The event matrices were then realised as necessary, although in each case they are almost complete. The second act was broken into five sections or events and each one of these sections was given its own ground and event matrix.

The Greek function of Chorus is used by Witkacy to establish the setting for the drama to follow. At no other point does this, or anything similar, happen

and the singularity is reflected in the music by using all of the characters singing together in their own octaves with spoken text at the end.

The issues being addressed by *The New Deliverance* are; can *Manntaireachd* technique provide a compositional tool for 'opera', how does this need to be adapted for static scenes and how can this handle rapidly moving narrative?

The style of realisation was chosen to reflect the character of the text. The first act starts with mood painting and is very static. Little extended lyricism is permitted either in the vocal lines or in the score. As the dramatic pace increases, so an increasing amount of lyricism is allowed into the realisation and more melody appears towards the end of the act. Melody is seen as belonging more to the linear listening experience and in this context is more suited to the parts of the drama which are to be heard in this manner, leaving the reflection and introspection to be carried out in the comparative privacy of *musical relativity*, essentially undisturbed by external pressure of time.

Luigi Nono's *Intolleranza 1960?* provided the model for the first act being a non-narrative series of psychological tableaux.

The second act, containing all the dramatic action is broadly lyrical, less static and more prone to change of metre and tempo within each dramatic section. The prelude to the second act is a realisation of the eighth variation from the last scene in the first act; this is done to link the two acts together. The break is a practical consideration for performance, not an artistic choice.

Each ground was derived by setting key lines and phrases from the relevant scene or section and then developing an extensive ground from there with a free bass. At times the bass lines were very active and were used to give extra rhythmical flexibility to the event matrix.

Some free elements were introduced into the vocal lines of *The New Deliverance* in order to improve the clarity of the word setting. These were minimal and closely related to elements given within the event matrix.

Manntaireachd 1

Manntaireachd 1 has three main sections – introduction, variations and coda. Each phrase of the ground is reduced to its pitches which are presented simultaneously as chords in the introduction. These chords are embellished by minimal activity in the cello and first violin. The coda is the same material in reverse.

The single ground is a secondary 332 in Kilberry/Thomason's definition and is not accompanied by a bass. Every event in the matrix is used in the realisation and each variation largely seeks to express a different approach, much as traditional pibroch will systematically move through the standard variation types.

As can be seen, the first variation deals largely with bowing. The pressure trill, changing pressure during a double stop on the cello is regarded as a bowing technique in so far as it requires the player to be bowing to create the effect.

The second variation from bar 18 onwards is intended to be an ethereal and 'indefinite' variation, hence the high pitches, low dynamic, those pitches produced by bowing behind the bridge and the predominance of very short notes and altered pizzicato (such as the fingernail pizzicato). The cello 'senza arco' also produces indefinite pitches.

The third variation is a return to bowed effects this time in a higher dynamic and strikes an early climax. This is to facilitate a radical change in direction to very quiet and again ethereal, forming a non-linear approach of doubling each variation. This time however more unusual and imprecisely pitched pizzicato effects are deployed.

The contrast with the fourth variation starting at bar 42 is dramatic. The material is extremely limited, consisting only of 3 different bars. On account of this, each variation must seek to use as varied a sonoristic medium as possible.

As with traditional pibroch, a return to something resembling the ground should happen before the last variation and its doubling²⁸. Here the music

²⁸ The convention of repeating the ground between the *taorluath* doubling and *crunluath* singling has largely been dispensed with by modern competition pipers and judges but is clearly understood in traditional teaching. It is not unknown for recitalists to observe this convention when playing smaller pibrochs outside of the competition environment.

returns to the more traditional soundworld of normal bowing and a moderate tempo and dynamic. The function of this variation is to indicate that the piece has entered its final stages, a false reprise.

Again, non-sustained notes and an increase in tempo appear and the contrast with the previous variation is intended to indicate that a climax and ending is approaching. By adopting such a continuation it is obvious that the reprise has been false and so the next climax logically should represent the end of the piece. The thin tone colour, despite the indicated dynamic then transforms into a lower dynamic but fuller tone colour and the variations are closed with a quiet single chord.

The coda is the same as the introduction in reverse, indicating that the movement, though not a palindrome, should not be regarded in a left to right linear manner, but rather approached as an argument that occurs outside of time.

As the title suggests, this was the first piece to be (satisfactorily) composed in the *Manntaireachd* manner and is deeply concerned with establishing musical relativity in the mind of the listener. To this purpose the material has been limited and whilst the manner of presentation of the main motives are very varied, they are never the less almost always easily aurally identifiable. The sense of repeatedly restating something in a different way, from a different perspective is intended to be prominent.

Bezpanski Pies

The text was written by Halina Poswiatowska, an award winning Polish poet and is a symbolic poem describing loneliness and feelings of rejection from a woman's perspective. This text was chosen for its psychological character lending itself to the kind of non-narrative, highly intense style of setting possible with *Manntaireachd* technique. It was also chosen for the potential given for extreme colouring in the harp accompaniment.

Manntaireachd technique has been used to render the entire material, which was then through composed without any reference to the variation structure. This is comparable to the way both *Cockroaches* and the prologue to *New Deliverance*.

The extended harp techniques are drawn partially from Salzedo; the 'S' instruction, playing with the back of the fingernails is taken from realisations in the Robert ap Huw manuscript. Not all of the suggested methods of embellishing for the early harp can be achieved with a modern concert harp because of string tension but striking the string with the back of the nails is a very distinctive sound and quite practical. Coins are used as plectra in this piece for the very hard sound this creates. This is inspired by the Chinese Gu-zheng (zither) which is played with plectra on all the fingers.

Lament for the Lime Tree

Lament for the Lime Tree could be described as a linear pibroch in which each variation applies a different process to an underlying harmonic structure. The ground is of the even lined type with the repeat of the first line being taken up in a higher register in the first violin. A drone effect is created and altered over the course of the ground by rhythmic alteration of repetition of a two note figure in the lower instruments.

This is very much a modern pibroch for mixed pipes integrated with string quartet.

The first variation conforms to the *dithis* type in pibroch tradition and is exactly what we may expect to see in such a pibroch if it were for solo pipes. The soundscape is radically altered by a change of modality (necessary as the smallpipes are not chromatic) and glissandi in the strings.

Harmony is derived primarily in an altered pentatonic approach. Five fifths, either perfect or diminished, are used to create pentachords built upon the pitches of the mode in each variation and the resultant tension is represented by the instrumental colours chosen. Each variation has a different basic harmonisation but each themal note must be available to the chosen pentachord.

The second variation is of a tripling *toarluath* type²⁹ in which the repeated triplet figure is divided between pizzicato viola and cello. Compliant with pibroch tradition, this is a singling of a variation in which not each themal note need be subjected to the systematic embellishment, but in which an alternative embellishment/variation may be applied. Here eighth note figures provide the variety in approach. A doubling of this variation would reduce all of the viola and cello material to triplet figures (or re-instrument this but still with triplet figures replacing the eighth figures).

As in *Manntaireachd 1* the ground is re-introduced at bar 50 before the final variation. Here it is chromatically altered to be a semitone lower in relation to both the original pitch and the drone from the borderpipes.

The quartet continues the systematic variation process divided into two – upper and lower strings. The violins largely harmonise and compliment the bagpipe line whilst the viola, drawing upon the *dithis* variation has glissandi between harmonically important pitches. The cello here has what may be thought of as a stretched doubling of the *dithis* variation with a long gesture (crescendo and arco) contrasted in each action with a short alternative, loud and pizzicato. As with any doubling, this process is applied to each note, whereas we see in the violins that each line is marked by a cadence³⁰ indicating this is a singling type variation. Use of a figure derived from the third bar of the ground indicates an early variation type and a second figure also thus derived and rhythmically altered confirms this approach.

²⁹ A triplet on low a followed by the themal note in pibroch. This would usually imply certain less common types of *crunluath* variation should be used.

³⁰ Sustained chord with varying articulation.

The final variation before the restatement of the ground is analogous with a *crunluath* variation whilst at the same time seeking to reintroduce elements from the ground and double the previous variation (in the violins). The viola figuration, at once serving to bind the texture is also indicating a return to the ground and is of secondary importance harmonically, serving as in the ground to create a drone. The cello has a rhythmical pattern suggestive of *crunuath*³¹.

Both groups in this variation follow their own harmony, derived from the ground and seek to unite by the final chord. The crescendo is a dramatic effect to confirm entry of the smallpipes for the final ground.

It may be asserted that laments³² should have a moment of calm acceptance at the end, and this is expressed in the harmonisation and use of smallpipes for the final statement of the ground here. All harmonies are based on five perfect fifths together and the use of simple figuration and minimal melodic activity contributes to a gradual settling of the piece.

Whilst the form is outwardly that of traditional pibroch, it has been somewhat compacted by omission of certain doublings and by allowing two or more

³¹ Thematic note then 'bandre' in canntaireachd where 'dre' has several grace notes heard as a drumming effect on low notes and a higher note.

³² According to Col. JP Grant in his early 20th century book, "Ceol Mor" each type of pibroch must have certain elements suggesting a programme to go with their function. i.e. laments should have sadness, celebration, anger and acceptance in the ground somewhere. He goes as far as to suggest particular emotional significance to each note on the pipe scale. Whilst this may be rather poetic, oral tradition and musical evidence supports the general idea that certain tonalities and symbolic elements should be used for certain types of tune and musical evidence (particularly clear in gathering type tunes and battle tunes).

variations to happen simultaneously by grouping the instruments and assigning each group its own variation type.

Using both smallpipes and borderpipes in one piece is a technical challenge for the piper not only to change instrument quickly and quietly but to close or open the drones as required and ensure the instruments are tuned to the same standard. Both instruments are very stable in tuning, but respond differently to atmospheric conditions and can take a long time to alter.

Lament for the Lime Tree responds to traditional pibroch such as *In Praise of Marion*, *The Wee Spree*, *The Gordon's Salute*, and *Clan Chattan's Gathering*.

The author has written a number of comparable pieces for orchestra and bagpipes, including the slow movement to his concerto for highland bagpipes.

Welcome to the Twelve Tones

Fusion of the western art and pibroch traditions might well lead to the creation of a new type of pibroch as it has led to a new orchestral approach.

Welcome to the Twelve Tones seeks to establish an approach to totally chromatic pibroch. The ground and the *taorluath* and *crunluath* variations are formed in a manner traditional to piping, whereas the first variation and its doubling are a sonoristic invention inspired by the experimental composers of the last half of the 20th century, such as Berio.

The research questions in this piece are what western art tools can be applied to pibroch, and how can the chromatic possibilities of the border pipes be used to expand the piping tradition?

It was felt that use of all twelve tones would be the most symbolic and substantial contribution from western art music. Given the influence of a constant single pitch drone, it was essential to find a formal approach that did not depend on harmonic progression in a traditional sense for structure, but rather one which could explore all twelve tones without needing to rely upon an organic harmonic substructure.

Treating traditional canntaireachd derived formulae such as double echoes as single pitches, it can be seen that the first line states all twelve semitones prior to repeating any, thus seeking, as in Schoenberg, to partially liberate the melody line from a tonic or final.

The constant drone, even if assigned the primary function of defining a musical space, is going to establish 'A' as a final or tonic. Retaining *taorluath* and *crunluath* variations, which may be seen as being absolutely critical to the essence of pibroch will also pull towards this sense of tonality and therefore true twelve tone composition in the sense of Schoenberg is incompatible with pibroch where a drone and any reference to traditional variations will be present.

Use of notes traditionally outside of the natural mode of the bagpipe requires invention of new embellishments of which there are four in this piece. The new variation type and its doubling are inspired by extended techniques from the orchestral group.

The melody, whilst initially setting off in a manner suggestive of total chromaticism, complies with the structural approach and context implied by musical relativity.

Borderpipes with or without drones may be used in a serial composition or in a totally chromatic environment without issue. This is a different matter to combining such techniques with pibroch.

Pibrochs in which all twelve tones are used equally are a perfectly viable new direction for borderpipes. Likewise, new variation types based on extended instrumental techniques and sonorism can be created and combined with existing methods of variation as it is hoped this piece demonstrates.

7. Summary

To summarise the broader context of the accompanying folio of compositions we can group them thus: pieces in the pibroch tradition, music drama and symphonic music.

Manntaireachd 1, Lament for the Lime Tree, Welcome to the Twelve Tones belong to the pibroch tradition. Firstly, they respond to the established and traditional approach to linearity in pibroch as would be found in any tune from the pre-existing repertoire. At the same time each piece has a particular contextual mission. Welcome to the Twelve Tones is most obviously closest to traditional pibroch, and its specific role is to bridge the gap between expanding and developing harmonic language in bagpipes and a potential totally chromatic approach to pibroch which because of limitations of instrument construction must take place on borderpipes. In terms of embellishment it seeks to open up and suggest possibilities of entirely sonoric methods of producing embellishments, which likewise can fit comfortably in the pibroch variation method.

Lament for the Lime Tree again is very close to the pibroch tradition, using a traditional theme construction and comparable variation arrangement. The experiential philosophy is also similar to that required for pibroch, particularly with regards to linearity and relativity. The instrumentation serves to bring the understood concept of pibroch to a recognised western art ensemble and the

use of mixed bagpipes is intended to form a symbolic bridge of the two traditions.

Manntaireachd 1, whilst bearing resemblance to the other pieces in this group is very much a step further. The thematic structure is derived from traditional pibroch but the experiential philosophy is much more dependant upon the listener shifting awareness between global appraisal of the piece and highly localised or fragmentary listening. Each variation broadly seeks to explore a different way of producing sounds from the instruments instead of being a systematic embellishment of the themal notes. Hence the external structure of traditional pibroch is recognisable, but the methods used are much further removed from tradition than the other pieces here described. As the title suggests, Manntaireachd 1 was the first piece composed with this new technique in its exact form and leaves open many doors for future experiment.

Cockroaches, The New Deliverance and Bezpanski Pies are all pieces of music drama. A single poem, not in a cycle and not narrative was chosen to explore the concept of a mantroch as an essentially non-linear listening experience in Bezpanski Pies. As the text itself does not have a linear narrative 'start to finish' format, so the music could to a certain extent be re-arranged without destroying its essential meaning and mood (although this would need to recognise localised phrase structure and practical performance consideration). Whilst using an event matrix to generate the musical material is experimental, the idea of a poem in music is of course very old. A miniature form was chosen to establish a model for larger scale vocal and dramatic

works as a way of generating localised self contained events. Cockroaches, however, goes beyond this aria-type approach and seeks to create a single homogenous scene that is basically to be experienced through the philosophy of musical relativity. The use of more sonoristic instrumental techniques is intended to alienate the listener from linearity in exactly the way that sonorism was used in its early stages during the second half of the twentieth century. The text has a certain linearity which is reflected in the musical structure. The realisation of the event matrix itself is designed to be a commentary on the text and as such has a narrative and cannot be deconstructed and re-arranged without serious problems. Thus the implicit compromise of musical relativity (all music will be physically heard in a linear manner) is revealed – all dramatic pieces using this approach will need to be experienced several times and actively explored by the audience from many different perspectives before the full potential capacity of musical relativity can be brought to bear. This has been further explored in *New Deliverance*; act one goes from highly contemplative and non-directional to a more dynamic and active second act. This is reflected in the style of realisation of the event matrix – going from static and colouristic to melodic. Equally, it is reflected in the pre-compositional decisions concerning structure of the event matrix and organisation of the various variations and separate grounds.

The symphonic pieces (the symphony and chamber symphony) attempt to address another issue of linearity in music. Both these pieces are concerned with localised gestures and the mannerism of musical discourse. The importance of motivic detail in these pieces places great demands on the

listener as there are almost unlimited combinations of elements to which one can assign varying degrees of importance and thus create a different overall impression and meaning. Comparison of these three groups and the role played by musical relativity within them illustrates the core problem with the matter itself.

Musical relativity as a concept is in itself a very broad idea encompassing many different traditions and the work of many composers. To a greater or lesser extent the issue of linearity in music appreciation has been addressed by the major influential composers of the twentieth century – Stockhausen with his enormous *Aus den Sieben Tagen* where finely detailed moments are pasted together with an overwhelming effect; Nono with his 'stage happening', *Intolleranza 1960?* suggestive in some way of the Arthurian romances (as is Umberto Eco's *In the Name of the Rose*) contrasted with Penderecki's early sonorist experiments (*Anaklasis*, *Flourescences*, *Threnody to the Victims of Hiroshima*) seeking to replace his inherited musical dialectic of harmonic and consequential events with contrasts between and movements from definites to indefinites (single tone changing to note cluster, single event fragmenting to multiple events and returning).

In this portfolio of compositions, the composer has sought to investigate linearity in music by identifying three of many potential positions - aspects of traditional pibroch, movement between static stage events and music drama, and motivic detail as a part of a global texture and thereafter to develop

manntaireachd technique to provide a medium through which to carry out this investigation.

It is hoped that 'musical relativity' and the portfolio of compositions as a whole will serve as a provocation to future composers to continue to investigate the issue of linearity in music and provide an umbrella term for this investigation.

8. Acknowledgements

Among those who have provided much practical and moral support I would like to thank the following:

- Professor Stephen Kerr, Much Honoured Baron of Ardgowan and Michael Kerr of Chicago for providing critical financial support which has always arrived exactly when it has been most needed
- My parents, who provided discreet finance and facilities and even allowed me to use their computer when I needed extra computing power
- Dr Stephen Davismoon, my supervisor, who was willing to say the hard things when they had to be said
- My wife, Irena, who has been patient, supportive and tolerant throughout the whole long mission.

Without the financial aid of the Ian Tomlin Scholarship I would never have started on this journey.

9. About the Author

Lindsay Davidson is a professional 'piper with a broad range of interests. Between solo and band competitions, Lindsay has won numerous awards including; 1987 Junior Scottish Champion (only time competed), Scottish Championships (six times), the prestigious Calum Piobair Trophy 1987 British Championships (six times), Cowal Championships (four times), World Championships (once), Champion of Champions (five times). Pipe Major Davidson retired from competing in 1988, at the age of fifteen, but made a brief and exceptional appearance to take the title of "Champion Piper of Western Australia" in 1998. In concert Lindsay performs on Highland Pipes, Scottish Smallpipes and Borderpipes.

Lindsay has undertaken two world concert and workshop tours, previously ran his own school of piping (with six assistants) and a small equipment supply service, 'The Complete Piping Service'. Always interested in innovation his school created a new method of teaching and his supply company developed 'Pipewriter', a leading pipe music type setting computer program in addition to publishing his many books.

His first orchestral commission, "Drummond" came in 1998 from Edinburgh Airport and was premiered by the Cracow Philharmonic and given its first UK performance with the RSNO a month later. This was a piece for pipe band and symphony orchestra, and set an initial direction for Lindsay's work. A commission from St Ronan's Silver Band followed shortly after for two pieces

for massed brass and pipe bands first performed in 2000 at the Peebles Tattoo.

At this time Lindsay was leaving the teaching and trading field to return to performing and composing. He developed extensive interests in Central Eastern Europe and for two years was resident soloist with the Leopold Chamber Orchestra from Lviv, Ukraine. In this capacity and for his other concert performances he has developed a large collection of music for various bagpipes and orchestral ensembles in a popular vein, some of which are demonstrated on his CD "Philharmonic Bagpipes" with The String Orchestra of Poland. It was inevitable that Lindsay should seek to more closely integrate and synthesise these two musical traditions.

Venues and media for Lindsay's performances range from the renowned Warsaw Autumn Festival (for which he learned to play a Polish Zywiec Bagpipe), Lancut Festival (televised by 'Polonia' for worldwide satellite broadcast), several appearances at the Lorient festival in Brittany, Venezuela's Colonia Tovar festival, many TV and Radio performances across the world including extensive recording for Slovakian Radio in the early 90s and an archive recording of his own compositions with legendary Amadeus Chamber Orchestra of the Polish Radio conducted by Agnieszka Duczmal (the first and only woman to conduct in La Scala, Milan) in 2002. Lindsay has also given performances for many dignitaries including the Norwegian Royal family, Prince Charles, Prince Edward, two Presidents of Poland and

performed privately at the EU summit in Edinburgh at a heads of state banquet.

His pipe music is played across the world – from the desert of western Australia to Indonesia, South and North America and across Europe. Pieces are featured on several recordings by Richard Kean ('The Irony Board', 'The Highland Bagpipe', 'Shrine', among others), the group 'Tartantic' and he is featured as a guest artist on Wojtek Mrozek's (clarinet/conductor) albums, 'Dances of the World' volumes 1 and 2 playing his own compositions for orchestra and pipes.

He has written extensively for harp and smallpipes and performs at festivals across Europe with his harpist wife, Irena. He leads a chamber musical ensemble called 'The Reivers' which draws its repertoire from the borderlands between the 'traditional' and 'classical' genres.

His 'Abercairney Suite' for solo harp is published by PWM, Cracow, Poland.

Lindsay was Town Piper to his home town of Linlithgow from 1987 to 2002, is Clan Piper to Clan Davidson and Court Composer to the Baron of Ardgowan. Major works include a three act opera called 'Tulsa' concerning the 1921 Tulsa Race Riots, a marimba concerto and a 'Scottish Suite' for string orchestra. Current commissions include a piano concerto, a harp concerto, religious music (for concert performance) a two volumes of pipe music.

Lindsay currently divides his time equally between Poland, Scotland and travelling and has a daughter, Izabella.

10. Select Bibliography

Music Review:

Adams, John	Nixon In China
Bacewicz, Grazyna	String Quartet No.1
Bacewicz, Grazyna	String Quartet 7
Bacewicz, Grazyna	Piano Quintet 1
Bacewicz, Grazyna	Divertimento
Baird, Tadeusz	Three Songs
Barrie, William	Lament For Pipe Major Robert Reid
Berg, Alban	Wozzeck
Berio, Luciano	Sinfonia
Berio, Luciano	Sequenza 1 Flute
Berio, Luciano	Sequenza 3 Female Voice
Berio, Luciano	Sequenza 4 Piano
Berio, Luciano	Sequenza 5 Trombone
Berio, Luciano	Sequenza 6 Viola
Berio, Luciano	Sequenza 7 Oboe
Berio, Luciano	Sequenza 9a Clarinet
Berio, Luciano	Laborintus 2
Bien, Mateusz	Osiris - Przypowiesc
Birtwistle, Harrison	The Triumph Of Time
Birtwistle, Harrison	Gawain's Journey
Britten, Benjamin	Paul Bunyan

Britten, Benjamin	Peter Grimes
Britten, Benjamin	The Rape Of Lucretia
Center, Ronald	String Quartet 1
Erik Chisholm	Piano Concerto 1
Crumb, George	Departure
Crumb, George	Absence
Crumb, George	Return
Dempster, Ken	Seven Fans For Alma Mahler
Dempster, Ken	Wyoming-Tumbleweed
Dempster, Ken	Spiral Stairway
Dempster, Ken	Chaconne
Dempster, Ken	Under The Hammer
Dillon, James	Siorram
Druckman, Jacob	String Quartet 2
Dusapin, Pascal	Inside
Feldman, Morton	Structures For String Quartet
Glass, Philip	Einstein On The Beach
Glass, Philip	Satyagraha
Glass, Philip	Dance
Glass, Philip	Akhnaten
Gorecki, Henryk	Concerto For Harpsichord And String Orchestra
Henze, Hans Werner	Symphony 1
Henze, Hans Werner	Symphony 2
Henze, Hans Werner	Symphony 3
Henze, Hans Werner	Symphony 4

Henze, Hans Werner	Symphony 5
Henze, Hans Werner	Symphony 6
Henze, Hans Werner	The English Cat
Hiller, Lejaren	String Quartet 5
Ives, Charles	Symphony No 2
Ives, Charles	Central Park In The Dark
Ives, Charles	The Unanswered Question
Jazownik, Jan	Pejrzarze
Kilar, Wojciech	Orawa
Krasa, Hans	Symphony
Krenek, Ernst	Violin Concerto 1
Krenek, Ernst	Symphony 2
Krenek, Ernst	Jonny Spielt Auf
Kurtag, Gyorgy	The Sayings Of Peter Bornemisza
Kurtag, Gyorgy	Four Songs To Poems By Janos Pilinszky
Kurtag, Gyorgy	Eight Piano Pieces Op3
Kurtag, Gyorgy	Eight Duets For Violin And Cimbalon
Kurtag, Gyorgy	Jelek
Ligeti, Gyorgy	Requiem
Ligeti, Gyorgy	Chamber Concerto For 13 Inst
Ligeti, Gyorgy	Ramifications
Ligeti, Gyorgy	Lux Aeterna For 16 Voices A Cappella
Ligeti, Gyorgy	Atmospheres For Large Orchestra Without Percussion
Ligeti, Gyorgy	Passacaglia Ungherese

Ligeti, Gyorgy	Hungarian Rock
Ligeti, Gyorgy	Continuum
Ligeti, Gyorgy	Etudes Book 1
Ligeti, Gyorgy	Etudes Book 2
Ligeti, Gyorgy	Chromatische Phantasie
Ligeti, Gyorgy	String Quartet 1 Metamorphoses Nocturnes
Ligeti, Gyorgy	String Quartet 2
Ligeti, Gyorgy	Cello Concerto
Ligeti, Gyorgy	Violin Concerto
Lutoslawski, Witold	Overture For Strings
Lutoslawski, Witold	Concerto For Orchestra
Macleod, Donald	Lament For John Macdonald, Inverness
Macleod, Donald	Lament For John Morrison Of Assynt House
Maclellan, John	The Phantom Piper Of Corrieyairack
Maxwell Davies, Peter	Eight Songs For A Mad King
Maxwell Davies, Peter	The Martyrdom Of St Magnus
Mcguire, Eddie	Cruel Mither
Merilainen, Usko Jan	Concerto For Double Bass And Percussion
Merilainen, Usko Jan	Symphony 3
Merilainen, Usko Jan	Concerto No2 For Piano And Orchestra
Messiaen, Olivier	Turangalila Symphony
Messiaen, Olivier	Quatuor Pour La Fin Du Temps
Messiaen, Olivier	Harawi
Messiaen, Olivier	Quatre Etudes De Rythme
Messiaen, Olivier	Des Canyons Aux Etoiles

Messiaen, Olivier	Sept Hakai
Messiaen, Olivier	Catalogue D Oiseaux
Messiaen, Olivier	Chants De Terre Et De Ciel
Messiaen, Olivier	Hymne Au Saint Sacrement
Nono, Luigi	Due Espressioni
Nono, Luigi	A Carlo Scarpa, Archetitto, Ai Suoi Infiniti Possibili
Nono, Luigi	Post Prae Ludium
Nono, Luigi	Omaggio A Gyorgy Kurtag,
Nono, Luigi	Prometeo
Nono, Luigi	Canti Di Vita E D Amore
Nono, Luigi	Omaggio A Vedova
Nono, Luigi	Composizione Per Orchestra No1
Nono, Luigi	Der Rote Mantel
Nono, Luigi	Intolleranza 1960?
Nono, Luigi	Recital For Cathy
Norgard, Per	Symphony No1
Norgard, Per	Symphony No2
Nyman, Michael	The Man Who Mistook His Wife For A Hat
Palester, Roman	Fifth Symphony
Panufnik, Andrzej	Sinfonia Sacra
Panufnik, Andrzej	Arbor Cosmica
Pärt, Arvo	Cello Concerto
Pärt, Arvo	Perpetuum Mobile Op10
Pärt, Arvo	Symphony 1
Pärt, Arvo	Symphony 2

Pärt, Arvo	Symphony 3
Pallasz, Edward	Symphony '1976'
Penderecki, Krzysztof	Violin Concerto
Penderecki, Krzysztof	St Luke's Passion
Penderecki, Krzysztof	Magnificat
Penderecki, Krzysztof	Sinfonietta Per Archi
Penderecki, Krzysztof	Threnody
Ptaszynska, Marta	Two Poems
Reich, Steve	Drumming
Reich, Steve	Six Pianos
Reich, Steve	Music For Mallett Instruments Voices And Organ
Sallinen, Aulis	String Quartet No1
Sallinen, Aulis	String Quartet No2
Sallinen, Aulis	String Quartet No3
Sallinen, Aulis	String Quartet No4
Sallinen, Aulis	String Quartet No5
Sciarrino, Salvatore	Tre Notturme Brillanti
Schnittke, Alfred	Symphony No 3
Schnittke, Alfred	Symphony No 4
Schnittke, Alfred	Requiem
Schnittke, Alfred	Concerto 1 For Cello And Orchestra
Schnittke, Alfred	(K)Ein Sommernachtstraum
Schnittke, Alfred	Passacaglia
Schnittke, Alfred	Faust Cantata
Schnittke, Alfred	Concerto No 3 For Violin And Orchestra

Schnittke, Alfred	Concerto No 4 For Violin And Orchestra
Schnittke, Alfred	Concerto Grosso No 3
Schnittke, Alfred	Concerto Grosso No 4 Symphony 5
Schnittke, Alfred	Concerto For Piano 4 Hands And Chamber Orchestra
Schnittke, Alfred	Concerto No 1 For Violin And Orchestra
Schnittke, Alfred	Gogol Suite
Schnittke, Alfred	Labyrinths
Schnittke, Alfred	String Quartet No 1
Schnittke, Alfred	String Quartet No 2
Schnittke, Alfred	String Quartet No 3
Schoenberg, Arnold	Verklaerte Nacht
Schoenberg, Arnold	Chamber Symphony 1
Schoenberg, Arnold	Chamber Symphony 2
Schoenberg, Arnold	Moses Und Aron 1
Serocki, Kazimierz	Sinfonietta
Shostakovich, Dmitry	Symphony No1
Shostakovich, Dmitry	Symphony 7
Shostakovich, Dmitry	Symphony No.5
Shostakovich, Dmitry	Symphony No.9
Shostakovich, Dmitry	Symphony No 6
Shostakovich, Dmitry	Symphony No 11
Shostakovich, Dmitry	Symphony 12
Shostakovich, Dmitry	Symphony 7
Slavitsky, Klement	Symfonietta III

Slavicky, Milan	A Symphonic Vision For Large Orchestra
Stachowski, Marek	Divertimento
Stivell, Alan	Symphonie Celtique
Stockhausen, Karlheinz	Samstag Aus Licht
Stockhausen, Karlheinz	Donnerstag Aus Licht
Stockhausen, Karlheinz	Dienstag Aus Licht
Stockhausen, Karlheinz	Montag Aus Licht
Szalonek, Witold	Piernikiana
Taverner, John	The Last Sleep Of The Virgin
Taverner, John	The Protecting Veil
Tippett. Michael	Symphony 1
Tippett. Michael	Symphony 2
Tippett. Michael	Symphony 3
Tippett. Michael	Symphony 4
Tippett. Michael	The Ice Break
Torke, Michael	Percussion Concerto
Trad*.	Battle Of Auldearn
Trad.	Battle Of The Bridge Of Perth
Trad.	The Desperate Battle
Trad.	Battle Of The Pass Of Crieff
Trad.	Battle Of Sheriffmuir
Trad.	Battle Of Waternish
Trad.	Bells Of Perth
Trad.	Beloved Scotland
Trad.	Bicker, The

Trad.	Blind Piper's Obstinacy, The
Trad.	Blue Ribbon
Trad.	Craigellachie
Trad.	End Of The Great Bridge
Trad.	End Of The Little Bridge
Trad.	Flame Of Wrath For Patrick Caogach
Trad.	Clan Campbell's Gathering
Trad.	Clan Chattan's Gathering
Trad.	The Macnabs' Gathering
Trad.	Glen Is Mine, The
Trad.	Grain In Hides And Corn In Sacks
Trad.	Groat, The
Trad.	I Am Proud To Play A Pipe
Trad.	I Got A Kiss Of The King's Hand
Trad.	Lament, Catherine's
Trad.	Lament For The Children
Trad.	Lament For The Departure Of King James
Trad.	Lament For Donald Ban Maccrimmon
Trad.	Lament For Donald Dughal Mackay
Trad.	Lament For The Duke Of Hamilton
Trad.	Lament Duncan Macrae Of Kintail's
Trad.	Lament For The Earl Of Antrim
Trad.	Lament, Glengarry's
Trad.	Lament For The Harp Tree
Trad.	Lament, John Garve Macleod Of Raasay's

Trad.	Macdonald Of Kinlochmoidart's Lament, No.1
Trad.	Lament ,Mackintosh's
Trad.	Lament For Macswan Of Roaig
Trad.	Lament For Mary Macleod
Trad.	Lament For The Old Sword
Trad.	Lament For The Only Son
Trad.	Lament, Patrick Og Maccrimmon's
Trad.	Lament, Queen Anne's
Trad.	Sir James Macdonald Of The Isles Lament
Trad.	Maccrimmon's Sweetheart
Trad.	Maccrimmon Will Never Return
Trad.	March, Donald Gruamach's
Trad.	March, Glengarry's
Trad.	Massacre Of Glencoe
Trad.	Nameless, Hiharin Odin, Hiharin Dro
Trad.	Nameless, Hi Hio Tro Tro,
Trad.	Old Men Of The Shells
Trad.	Old Woman's Lullaby
Trad.	Park Piobaireachd, No. 1
Trad.	Piper's Warning To His Master
Trad.	Praise Of Marion
Trad.	Pride Of Barra
Trad.	Robert Ap Huw Harp Manuscript As Realised By Bill Taylor
Trad.	Red-Speckled Bull, The

Trad.	Salute, Chisholm's
Trad.	Salute, The Earl Of Seaforth's
Trad.	Salute, The Clan Macnab's
Trad.	Salute, Corrienessan's
Trad.	Salute, Lady Doyle's
Trad.	Salute, The Prince's
Trad.	Salute, Struan Robertson's
Trad.	Scarce Of Fishing
Trad.	Sound Of The Waves Against The Castle Of
Duntroon	
Trad.	Spree, The Big
Trad.	Spree, The Little
Trad.	Too Long In This Condition
Trad.	Unjust Incarceration, The
Varese, Edgar	Ameriques
Varese, Edgar	Poeme Electronique
Varese, Edgar	Offrandes
Varese, Edgar	Octandre
Varese, Edgar	Integrales
Varese, Edgar	Ionisation
Varese, Edgar	Density
Varese, Edgar	Deserts
Ward, David	Quintet For Bb Clarinet And Strings
Webern, Anton	Passacaglia For Orchestra Op. 1
Webern, Anton	5 Movements Op. 5

Webern, Anton	6 Pieces For Orchestra Op. 6
Webern, Anton	3 Orchestral Songs
Webern, Anton	Symphony Op. 21
Webern, Anton	Variations For Orchestra Op. 30
Webern, Anton	5 Pieces For Orchestra Op. 10
Weill, Kurt	Concerto For Violin And Wind Orchestra Op12
Widlak, Wojciech	Chromatic Fantasy ' The Son Is Scrumptious'
Widlak, Wojciech	Wziemiewzecie

*Many of the pieces marked traditional have legends attributing them to composers but as these sources cannot be verified with any certainty and as most pieces are assumed to have been subjected to substantial alteration through playing and teaching orally, 'traditional' seems a more meaningful attribution.

Bibliography:

Ballantine, Christopher	Twentieth Century Symphony	Dobson Books 1983
Brindle Reginald Smith	Serial Composition	OUP 1966
Buisman, Frans (Ed.)	The Macarthur Macgregor Manuscript	Universities Of Glasgow And Aberdeen 2001
Campbell, Archibald	The Kilberry Book Of Ceol Mor	Piobaireachd Society 1948
Campbell, James (Ed.)	Sidelights On The Kilberry Book Of Ceol Mor Glasgow 1984	
Campbell, James (Ed.)	Further Sidelights On The Kilberry Book Of Ceol Mor	
Forsyth, Cecil	Orchestration	Macmillan&Co 1948
Glen, David	Historic, Biographic And Legendary Notes To The Tunes By 'Fionn' Edinburgh	Edinburgh, Circa 1880
Glen, David	Ancient Piobaireachd	Edinburgh, Circa 1880
Griffiths, Paul	Modern Music The Avant Garde Since 1945	Dent 1981

Griffiths, Paul	Peter Maxwell Davies	Robson Books 1982
Gerould, Daniel	The Witkiewicz Reader	Northwestern University Press 1992
Inglis, James	Typed Manuscript 'Mackay's Pipe Music'	Date Unknown
Jacobsen, Bernard	A Polish Renaissance	Phaidon 1996
Kenneth, Archibald	Archie Kenneth Piobaireachd Book 1,2 5	Glasgow
Macdonald, Joseph	Compleat Theory Of The Highland Bagpipe	Edinburgh, 1803
Mackay, Angus	Pipe Music	Edinburgh 1838
Macleod, Donald	Piobaireachd	Glasgow Circa 1980
Macphee, Donald	A Collection Of Piobaireachd	Glasgow Circa 1900
Messiaen, Olivier	The Technique Of My Musical Language (Transl. Satterield)	Alphonse Leduc 1956
Morgan, Robert	Source Readings In Music History The Twentieth Century	Norton & Co. 1978
Morgan, Robert	Anthology Of Twentieth Century Music	Norton & Co. 1992
Piobaireachd Society	Parts 2 And 3 Of The Discontinued First Series Of Their Collection	Circa 1910 Glasgow.

Purser, John	Scotland's Music	Mainstream Publishing With Bbc 1992
Read, Gardner	Compendium Of Modern Instrumental Techniques	Greenwood Press 1993
Ross, Roderick (Ed.)	Binneas Is Boreraig Vol 1,2 And 3	Glasgow 1980s
Ross, G. F.	Some Piobaireachd Studies	Glasgow 1926
Ross, G. F.	A Collection Of Macrimmon And Other Piobaireachd	Glasgow 1929
Ross, William	Pipe Music	London 1885
Siebert, Edrich	A Practical Guide To Instrumentation For The Brass Band	Studio Music Company 1976
Simpson, Robert (Ed.)	The Symphony	Penguin Books 1967
Taibon, Mateo	Luigi Nono And Sein Musiktheater	Bohlaue Verlag 1993
Taverner, John	The Music Of Silence	Faber And Faber 1999
Webern, Anton	The Path To The New Music	Universal Edition 1963
White, Eric	Tippett And His Operas	Hutchinson Group 1979
Wright, Denis	Scoring For Brass Band	Studio Music, London 1986

Interviews:

The following composers were interviewed on their compositional philosophy and thoughts on current directions in composition.

- Bien, Mateusz Composer and recording engineer. Lecturer in Recording Techniques Cracow Music Academy, Poland. Interviewed in May 2004 in Cracow and by telephone.
- Dlugosz, Jerzy Recording engineer and musicologist specialising in Shostakovich, Penderecki and Lutoslawski. Interviewed in Cracow, Poland, on several occasions during 2004.
- Jazownik, Jan More active as a conductor than a composer and specialises in opera. Professor and Head of Conducting at Cracow Music Academy and in Czestochowa, Poland. Interviewed in Scotland, January 2005.
- Kaczynski, Adam Professor of contemporary composition, Cracow Music Academy and well known composer. Interviewed in August 2005 in Cracow, Poland.
- Schweizer, Alfred Swiss Professor of Music. Interviewed in May 2005 at Festival of Cracow Composers, Cracow, Poland.
- Widlak, Wojciech Professor of Composition, Cracow Music Academy. Successor to Penderecki. Interviewed in October 2004 in Cracow, Poland.

Zubrzycki, Slawomir Pianist and composer. Telephone interview conducted in November 2004 and another in person in Cracow, May 2005.

Internet Resources:

Many of these sites are top-level sites with links to a number of articles, many covering all or most of the composers above.

<http://bubl.ac.uk/index.html>

<http://composers21.com/>

<http://composers-classical-music.com/>

<http://d-sites.net/english/nono.htm>

http://en.wikipedia.org/wiki/main_page

<http://home.wanadoo.nl/eli.ichie/index.html>

<http://info-poland.buffalo.edu/classroom/witkacy/witkacy.html>

<http://monika.univ.gda.pl/~literat/autors/witkacy.htm>

<http://nulis.napier.ac.uk/subjectguides/mus/muslaunchpad.htm>

<http://theatreoffstage.com/witbio.htm>

<http://w3.rz-berlin.mpg.de/cmp/classmus.html>

<http://www.answers.com/>

<http://www.arts.gla.ac.uk/slavonic/witkiew.htm>

<http://www.bbc.co.uk/music/profiles/>

<http://www.boosey.com/>

<http://www.braunarts.com/birtwistle/>

<http://www.charlesives.org/>

<http://www.chesternovello.com/>

<http://www.compositiontoday.com/>

<http://www.culture.pl/en/culture/>

http://www.culture.pl/pl/culture/artykuly/os_baculewski_krzysztof
<http://www.erikchisholm.com/>
<http://www.europalia.pl/>
<http://www.georgecrumb.net/>
<http://www.gyoergy-ligeti.de/>
<http://www.grovemusic.com/>
<http://www.iamic.net/>
<http://www.lib.duke.edu/dw3/>
<http://www.lindsaydavidson.co.uk/>
<http://www.maxopus.com/>
<http://www.musica.cz/en/>
<http://www.musicweb.uk.net/nono/>
<http://www.naxosmusiclibrary.com>
<http://www.perspectivesofnewmusic.org/>
<http://www.poland-embassy.si/pol/kultura/muzyka.htm>
<http://www.stockhausen.org/>
<http://www.schirmer.com/>
<http://www.schnittke.de/>
<http://www.schott-music.com>
<http://www.sonyclassical.com/artists/ligeti/bio.html>
<http://www.sonybmgmasterworks.com/>
http://www.witkacy.republika.pl/cytaty_indexbis.htm
<http://www.wwnorton.com/classical/composers/>

Journals:

Adlington, Robert	Moving Beyond Motion: Metaphors For Changing Sound	Journal Of The Royal Musical Association Vol 128, 2003
Bousted, Donald	An Empirical Study Of Quarter-Tone Intonation	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003
Butterfield, Matthew	The Musical Object Revisited	Music Analysis Vol. 21 Issue 3 October 2002
Carroll, Mark	Commitment or Abrogation? Avant- Garde Music and Jean-Paul Sartre's Idea of Committed Art	Music and Letters, Volume 83, Number 4, November 2002
Drott, Eric	The Role Of Triadic Harmony In Ligeti's Recent Music	Music Analysis Volume 2 Number 3 October 2003

Fox, Christopher	Temperaments, Tonalities And Microtonalities: An Introduction	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003
Fox, Christopher	Hybrid Temperaments And Structural Harmony: A Personal History	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003
Gilmore, Bob	The Climate Since Harry Partch	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003
Grimshaw, Jeremy	High, "Low," And Plastic Arts: Philip Glass And The Symphony In The Age Of Postproduction	The Musical Quarterly Volume 86 Number 3, 2002
Head, Matthew	Schubert, Kramer, and Musical Meaning	Music and Letters, Volume 83 Number 3 August 2002

Johnson, Shersten	Britten's Musical Syllables	Music and Letters, Volume 86 Number 4 November 2005
Kramer, Lawrence	The Mysteries Of Animation: History, Analysis And Musical Subjectivity	Music Analysis, Volume 20 Number 2 July 2001
Kramer, Lawrence	Analysis Worldly And Unworldly	The Musical Quarterly Volume 87 Number 1, 2004
Mirka, Danuta	Górecki's Musica Geometrica	The Musical Quarterly Volume 87 Number 2, 2004
Parsons, Ben	Arresting Boulez: Post-War Modernism In Context	Journal Of The Royal Musical Association, Volume 129 Number 1, 2004

Pitts, Stephanie	What Makes an Audience? Investigating the Roles and Experiences of Listeners at a Chamber Music Festival	Music and Letters, Volume 86 Number 2 May 2005
Riley M.	Johann Nikolaus Forkel on the Listening Practices of 'Kenner' and 'Liebhaber'	Music and Letters, Volume 84 Number 3 August 2003
Teodorescu- Ciocanea, Livia	Timbre Versus Spectralism	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003
Willson, Rachel Beckles	To Say And/Or To Be? Incongruence In Kurtág's <i>The Sayings Of Péter Bornemisza</i> , Op. 7	Music Analysis Volume 22 Number 3 October 2003
Wolf, Daniel James	Alternative Tunings, Alternative Tonalities	Contemporary Music Review Volume 22, Numbers 1-2/ March-June 2003

11. List of Appendices

The following compositions form the remainder of this thesis and are included as appendices:

“The New Deliverance”

“Cockroaches”

Symphony Number 1

Chamber Symphony Number 1

“Manntaireachd”

“Lament for the Lime Tree”

“Bezpanski Pies”

“Welcome to the Twelve Tones”